

INTER-SOCIETY COLOR COUNCIL

NEWS LETTER

NUMBER 182

May-June 1966

ANNUAL MEETING ISSUE
REPORT OF THE 35TH ANNUAL MEETING
STATLER HILTON HOTEL, NEW YORK, NEW YORK

35TH ANNUAL
ISCC MEETING

I don't know whether it was Max Salzman's excellent panel discussion on Instrumental Approaches to Color Formulation or whether it was Midge Wilson's excellent banquet speaker and arrangements or publicity, but something must be credited with bringing out an unusually large number of people to attend the 35th Annual Meeting of the Inter-Society Color Council. One hundred and fifty-six were registered, one hundred and seventy-one attended the banquet.

One does not ordinarily expect to be charmed by a lecture on geology. Dr. Paul D. Lowman, Jr. of NASA's Goddard Space Flight Center achieved the unusual by teaching his audience a great deal about the synoptic geology, by arousing enthusiasm for a contribution of space flights to our geologic knowledge, and by showing us a large number of fascinating and beautiful color photographs made from the Gemini II space flight. Although many of us found faults in his photographs, few found fault with his lecture.

The program as announced in Newsletter number 180-81 was an error. The panel members should have read as follows:

Moderator - Max Saltzman - Allied Chemical

1. Dr. Gunter Wyszecki - National Research Council of Canada
"Precision and Accuracy of Color Measurement"
2. Miss Ruth Johnston - Pittsburgh Plate Glass Company
"Advances in Instrumentation for Colorant Formulation"
3. Dr. Edwin Stearns - American Cyanamid
"Application of Instrumental Colorant Formulation
Techniques - Session I"
4. Dr. Fred Billmeyer - Rensselaer Polytechnic Institute
"Theoretical Advances in the Principles of Colorant Formulation"
5. Frederick Simon - Union Carbide
"Application of Instrumental Colorant Formulation - Session II"

The Color Association of the United States, in particular, Midge Wilson, was responsible for the excellent local arrangements and banquet program. One successful program leads to another. Next year's should really be a whopper.

REPORT OF THE PRESIDENT

RALPH E. PIKE

It has been a pleasure to have the honor to serve the Inter-Society Color Council as President during the past two years. In twenty years of association with the activities of this group, I can honestly say that my ISCC affiliation has afforded to me the greatest single opportunity that I have known--to learn about color, to make the finest friends, and to derive many personal satisfactions.

My report to you at this time, however, is intended to give an objective accounting of the affairs of Council during the past two years and to recommend to the new administration those aspects of planning which I believe require continuing attention.

On May 3, 1964, I presented for consideration by the new Board of Directors five objectives which I hoped would serve as a guide to our program in the years 1964-65. These were:

1. To expand the influence and effectiveness of the ISCC in all aspects of the stated aims and purposes.
2. To expand the number of active problem subcommittees and encourage more positive direction and leadership to existing subcommittees.
3. To develop an acceptable long range plan for upgrading the printing quality of the Newsletter and expanding its influence.
4. To initiate a study for the purpose of determining whether or not the aims of the ISCC can better be served by continuing to function as a Council or as a separate Color Society.
5. To establish a positive program leading toward the incorporation of basic facts and concepts of color in educational curricula for all levels of art and science instruction.

Good progress has been made in the first two of these objectives. A program for "semi-social" meetings with executives of our member bodies to better acquaint them with the ISCC and our mutual responsibilities has been quite fruitful. Our Board of Director's meetings have been held at locations which have permitted such contact with officers of more than two thirds of our member bodies. An increased interest has been demonstrated as a result of these meetings by: the level of participation (15 cooperating member bodies) enjoyed at the Williamsburg Conference, greater society attention to delegate selection, and increased publicity given to ISCC activities in their journals. These efforts should not be relaxed.

Our annual meetings have been well attended and interesting. This is the result of the efforts of individuals whose enthusiasm and hard work make them so successful. Our members have participated in the organization implementation of many cooperative color conferences and symposiums with our member bodies. An unusual degree of member participation in international meetings has also occurred. Many important publications have been made by members, and often involving the name of the Inter-Society Color Council. Our prestige and influence has grown. Our continuing policy should be one of ever expansion of influence and effectiveness through encouragement of ever higher levels of membership participation.

The work of the subcommittees on Problems 2, 23 and 26 have been satisfactorily brought to conclusion. Three new subcommittees on Problems 24, 25 and 26 were activated. Four additional problems are being actively considered by the Board. Our continuing problem subcommittees have shown good progress. The success of this aspect of our operation is to be credited to the Problems Committee Chairman, Dr. Roland Derby, Jr., who has consistently guided and cajoled the subcommittee chairmen who give so much of their time and talent to this cause; and to those volunteer workers whose willingness to share their knowledge and experience represents the Council's prime asset and reason for existence. We must aggressively continue to ferret out and define new problem areas and effectively report the results of our progress.

We have not evolved a long range plan to upgrade the printing quality of the Newsletter. Warren Rhodes, however, has consistently upheld the quality of material content with, at times, brilliant editorial contribution and embellishment. Color Engineering Magazine has provided a new outlet for dissemination of technical contributions outside the editorial scope and policy of the Newsletter and the technical journals of our member bodies. Any change in format, printing quality, or context of the Newsletter represents a problem already being aggressively faced by the next administration. Debate on possible improvements in organizational structure of the Council will always, I hope, be a continuing one. In this time and under these circumstances, however, our Board has wisely concluded that the present Constitution and By-laws provide a most satisfactory medium for achievement of our basic aims and purposes.

Disappointing to me has been our failure to make significant progress in finding a way to extend our influence to those persons responsible for color education curricula. The impact of the excellent work of the Subcommittee on Problem 20, resulting in publication of the book "Color - A Guide to Basic Facts and Concepts," could be greatly extended if we had a better means for bringing its story to the teachers of color in art and science at all levels of instruction. I would urge that every possible effort be made to attract as member bodies those national organizations which relate to the teaching profession in art, science, or industry. I can envision no more effective way to progress in prosecution of our aims, than to insure that those who instruct others use soundly established color facts and principles in their program.

I want to give thanks to the many people who have contributed to our past two year program and progress.

- To an excellent Board of Directors, faithful in attendance when and where the circumstances demanded; vigorous in debate; resolute and consistent in decision; wise in collective judgement; and always cooperative.
- To George B. Gardner, who with our Secretary Ralph Evans, sees that the Council proceeds on a reliable and predictable course; insures that all the essential details are covered when decisions are made; and works with all people to keep the surface calm and the Council image always pure.
- To the chairmen of Committees and Subcommittees for the countless hours of voluntary effort from which the Council draws its character. Nowhere is so much accomplished with such dedication by so few individuals.
- To the people of the Council, the workers on committees, the speakers on the programs, the commentators on and reporters of information, the organizers of programs and arrangements, to all those who contributed in their individual roles to the advancement of our purposes.

With humility and with sincere appreciation for the support of all our membership, it is appropriate now for me to turn the meeting over to your new President, Warren L. Rhodes. He assumes, for the next two years, the responsibility for guiding the Council to new levels of accomplishment. I sincerely believe that you could have elected no better man for this purpose. If you provide him with the same degree of support and guidance that I received from all of you, there will be a better ISCC in 1968

RALPH E. PIKE

REPORT OF THE SECRETARY
RALPH M. EVANS

The Inter-Society Color Council now consists of twenty eight member bodies which is two less than at the last annual meeting. The Packaging Institute resigned effective April 1. As noted in Newsletter No. 177-178, The American Society of Industrial Designers and The Industrial Designers Institute have formed a new society, The Industrial Designers Society of America. There are now 217 delegates and 550 individual members. This compares with 225 delegates and 513 individual members last year at this time. The names and interests of the individual members accepted during the year have appeared in the Newsletter which followed the Board of Director's meeting at which they were approved.

Four reprints were sent to the membership during the year as follows:

1. "Precision of Color Measurement with the G. E. Spectrophotometer I. Routine Industrial Performance," by Fred W. Billmeyer, Jr., and "An International Comparison of Working Standards for Colorimetry," by A. R. Robertson and W. D. Wright; reprinted from Journal of the Optical Society of America, pages 694-717, June 1965.
2. "Color Symposium," by Norman Macbeth, John N. Ott, Dorothy Nickerson and Charles W. Jerome, and Deane B. Judd; reprinted from Illuminating Engineering, pages 253-278, April 1965.

3. "The Aesthetics of Color: A Review of Fifty Years of Experimentation," by Victoria K. Ball, from The Journal of Aesthetics and Art Criticism, XXIII/4, Summer 1965, pages 441-452.
4. "A Universal Color Language," by Kenneth L. Kelly, reprinted from Color Engineering, pages 2-7, March-April, 1965.

The secretary's office is pleased to announce the results of the recent election of officers.

The Committee of Tellers (Dr. David L. MacAdam, OSA, Chairman, Mr. C. James Bartleson, SPSE, and Dr. Richard O. Edgerton, Individual Member) counted the ballots in Dr. MacAdam's office, March 24, and reported the election of the following new officers and directors of the Inter-Society Color Council for a two-year term beginning April 19, 1966.

President	Warren L. Rhodes, TAGA
Vice-President	Fred W. Billmeyer, Jr., SPE
Secretary	Ralph M. Evans, SMFTE
Treasurer	Norman Macbeth, IES
Directors	Karl Fink, ASTM
	George W. Ingle, ASTM
	Max Saltzman, DCMA
	Miss Midge Wilson, CAUS

According to the By-Laws, the vice-president is the president-elect and succeeds to the presidency, and the retiring president (Ralph E. Pike) automatically becomes a director for a period of two years.

These results were submitted officially to the Board of Directors at its meeting on April 17, and are being announced officially to the membership at this business meeting of the Council.

The application of the Graphic Arts Technical Foundation has been received by the Secretary's office. This application was presented to the Board of Directors at its meeting on Sunday, April 17, and the Board recommended favorable action by the voting delegates at this annual meeting of the Council.

REPORT OF THE TREASURER
NORMAN MACBETH

The Treasurer submitted a report from Gremmel and Wuerfel, accountants, who had examined ISCC records for 1965. This report, on file in the Secretary's office, is summarized as follows.

Balance Sheet as of December 31, 1965ASSETS

Cash		
The Columbus Trust Company		
New York Savings Bank		
Bowery Savings Bank		\$21,501.70
Investments		3,655.40
Accounts Receivable		997.85
Dues Receivable		<u>109.00</u>
TOTAL ASSETS		<u>\$26,263.95</u>

LIABILITIES AND CAPITAL

Dues Paid in Advance		18.00
Accounts Payable		3,568.29
Surplus		
Balance, December 31, 1964	18,755.20	
Add: Income over Expenses -	<u>3,922.46</u>	
Current Year		
Balance, December 31, 1965		<u>22,677.66</u>
TOTAL LIABILITIES AND CAPITAL		<u>\$26,263.95</u>

Statement of Income and Expenses for Year Ended December 31, 1965INCOME

Dues		\$ 3,934.00
Publication Sales		
Royalty	715.58	
News Letter	128.00	
Bibliography	18.75	
Special Publications	272.43	1,134.76
Interest and Dividends		936.88
Annual Meeting		429.20
Williamsburg Meeting		<u>1,045.56</u>
TOTAL INCOME		<u>\$ 7,480.40</u>

EXPENSES

Secretary's Office	20.08
Treasurer's Office	99.75
President's Office	519.27
News Letter	1,978.95
Special Publications	849.89
Contingency Fund	<u>90.00</u>

TOTAL EXPENSES

3,557.94EXCESS OF INCOME OVER EXPENSES\$3,922.461965 Budget Analysis

	<u>Budget</u>	<u>Expenses</u>	<u>Under or Over Budget</u>
President's Office	\$ 500.00	\$ 519.27	\$ (19.27)
Secretary's Office	100.00	20.08	79.92
Treasurer's Office	125.00	99.75	25.25
News Letter	3,000.00	1,978.95	1,021.05
Special Publications	1,000.00	849.89	150.11
Annual Meeting	400.00	(429.20)	829.20
Contingency Fund	<u>172.00</u>	<u>90.00</u>	<u>82.00</u>
TOTALS	<u>5,297.00</u>	<u>3,128.74</u>	<u>2,168.26</u>

I. H. Godlove Award Fund

Statement of Receipts and Disbursements for Year Ended December 31, 1965

Balance, January 1, 1965	\$1,030.58
Receipts	<u>25.00</u>
TOTAL	\$1,055.58
Disbursements	<u>20.00</u>
Balance, December 31, 1965	<u>\$1,035.58</u>

The Finance Committee's evaluation of the Balance Sheet and Operating Statement of the Inter-Society Color Council indicates the following comparative conditions for the year ended December 31, 1965, as compared with the year ended December 31, 1964.

1. Cash Increase	\$ 5,935.95
2. Total Assets Increase	6,974.93
3. Accounts Payable Increase	3,046.47
4. Surplus Increase	3,922.46
5. Market Value of Securities Increase	480.08
6. Total Income Increases	1,741.83
7. Total Expenses Decrease	651.44

There are several reasons for the increase in income, the most important being the unexpended balance of income over expenses for the Williamsburg meeting, which total income and total expenses have been included in the year ended December 31, 1965. This difference amounts to \$1,045.56.

To this, there was an increase in ordinary income, resulting primarily from increased interest and dividends, and from the annual meeting where income received from the annual meeting exceeded expenses.

With regard to expenses, one of the Newsletters was delayed in mailing by a month, switching this expense to the calendar year, 1966, in the amount of approximately \$320.

Taking these matters into consideration, the Finance Committee estimates the following income:

509 Individual Members		
- 7 Honorary Members		
502	@ \$ 6.00	\$ 3,012.00
28 Member Bodies	@ 35.00	980.00
37 Newsletter Subscriptions		
- 8 Prepaid		
29	@ 4.00	116.00
Estimated Publication Sales Income & Royalties		1,000.00
Interest and Dividends		<u>1,061.75</u>
TOTAL INCOME		\$ 6,169.75

RECOMMENDED BUDGET

President's Office	\$ 500.00
Secretary's Office	100.00
Treasurer's Office	100.00
Newsletter	2,500.00
Special Publications, including Membership List	1,400.00
Additional Cost for Williamsburg Conference, including publication distribution	1,045.56
Annual Meeting	400.00
Contingency Fund	<u>124.19</u>
TOTAL EXPENSES	\$ 6,169.75

The Board of Directors made a special appropriation of \$600 to cover anticipated expenses of the Williamsburg meeting. This budgeted expense is not shown because of the method used by the Treasurer in handling the total income and expenses up to date of the Williamsburg Conference. The \$600 was never required under these circumstances.

The Finance Committee recommends approval of the budget proposed above and acceptance of this report.

Respectfully Submitted,

Dorothy Nickerson
Wm. J. Kiernan
Roland E. Derby, Jr.
Norman Macbeth, Chairman

BUSINESS SESSION

As the first item of business the Secretary, Mr. Ralph M. Evans, said that the application for admission as a member body of the Graphic Arts Technical Foundation had been approved at the Board of Director's meeting on April 17 as already mentioned in the Secretary's report, and he would like to make a motion that the Graphic Arts Technical Foundation be admitted to the Council. The motion was seconded by Mr. Warren L. Rhodes, and upon roll call vote 25 voting delegates voted in the affirmative. There were no negative votes. The President, Ralph E. Pike, then declared that the Graphic Arts Technical Foundation became the 29th member body of the Inter-Society Color Council.

The report of the Treasurer and of the Budget Committee which was presented by Mr. Norman Macbeth had been acted on favorably by the Board of Directors at its April 17 meeting with the recommendation that the voting delegates act favorably

on these two reports. Mr. Macbeth made the motion that these reports be accepted. The motion was seconded by Mr. Walter Granville, and on roll call vote 25 voting delegates voted in the affirmative. There were no negative votes.

As the last item of business Mr. Ralph E. Pike, President, reported to the Council that the Board of Directors at its meeting on April 17 passed a resolution indicating that ISCC favors the objectives and wishes to support the formation of a new international color group which will be known as Intercolor.

The next annual meeting will be held in New York City at the Statler Hilton Hotel on Monday and Tuesday, June 12 and 13, 1967.

PROBLEMS COMMITTEE
REPORT

Subcommittee on Problem 2, Color Names,
Kenneth L. Kelly, Chairman

This Subcommittee having fulfilled the requirements for which it was reactivated, that is the development and production of the ISCC-NBS centroid color charts, your Secretary acting for the Board asked that a further problem be undertaken by this Subcommittee in the application of the centroid colors. This was the selection of about 20 centroid colors for use in maps and diagrams which would exhibit maximum contrast among these samples. This was done and the results were published in the November-December issue of Color Engineering under the title of Twenty-Two Colors of Maximum Contrast. The first nine colors were selected to exhibit maximum contrast also for the fairly common red-green type of color confuser.

The ISCC Board considered this problem of sufficient importance that it set up a new Subcommittee on Problem 26, Determination of Sets of Maximally Different Non-Fluorescent Surface Colors, to deal with further refinements of this selection.

The paper, A Universal Color Language was published in the March-April 1965 issue of Color Engineering. This paper describes the development and application of the centroid colors which form a supplement to the Color Names Dictionary. A copy of this paper has been distributed to each member of ISCC and one is sent with each set of centroid colors purchased.

New applications of the ISCC-NBS centroid colors were discussed.

Subcommittee on Problem 7, Survey of American Color Specifications,
Robert F. Hoban, Chairman

The Chairman received the files on this Subcommittee in late December 1965 and has tried to organize the work that has been done, with the recommendations of the members of the group at recent meetings. Mr. Scofield, past Chairman, has summarized his thoughts together with the consensus of the 1964 meeting, in a letter last May, as follows:

"The basic idea was to make an alphabetical, or other listing of all color standards and test methods available. This would give the usual name by which they are described, a physical description of their nature (materials, number of standards, etc.), the source from which they may be obtained,

if presently available, a literature reference to the best description and, if any correlation with other standards, particularly CIE, has been published, a reference to that."

"This would be supplemented by lists in which each standard would be identified only well enough to locate it in the general description. These lists might include types of standards, such as transparent, opaque, systematic, etc., such as are used in the present report, also lists of standard addressed to particular products, as is also done in the present report and, finally, a numerical list by issuing groups (ASTM, AOCs, Federal, etc.)."

"It was my thought that old or obsolete standards and methods would be described in the alphabetical listing, but not in the cross reference."

At this year's meeting, the Subcommittee should discuss and make a decision on the following:

1. The actual format of the report.
 - a) Alphabetic listing
 - b) Listing by materials
 - c) Listing by issuing groups
 - d) Other listings
2. Inclusion of Foreign Standards generally and specifically when widely used in the U. S.
3. Revision of standards, with additions and deletions.
4. Assignment of sections for review by those close to the industries, organizations, etc., involved.
5. Course of action for the coming year and a target date for a rough draft.

To assist some of this work, the Chairman has had index cards made for all standards in the 1955 report from Sections II, III, V, and VI. In addition, cards have been made on all revisions or additions brought to the attention of the committee in writing. For rapid identification, an edge color code was started using black for the standards in the original report, and red for suggested revisions or additions. This can be expanded as we progress.

MINUTES - ISCC Problems Committee 7
Survey of American Color Specifications

The meeting was called to order at 9:45 by the newly appointed Chairman, with

the following in attendance:

R. S. Hunter
H. F. Parker
C. M. Keay
W. J. Kiernan

Hunter Associates Laboratories
Pittsburgh Plate Glass
Harmon Colors
Bell Telephone Laboratories

J. S. Cartwright
Alexander F. Styne
T. F. Jones, Jr.
Hayes G. Shimp, Jr.
H. W. Godshalk
R. F. Hoban
W. L. Matthews
W. N. Hale
S. Gray Maycumber
K. L. Kelly
Helen W. Kelly
Eloise Voss
Carmen P. DiToro
Bruce W. Preston
Walter C. Granville

Harmon Colors
Consulting Industrial Designer
E. I. DuPont
Tintometer Ltd.
Holland-Suco
Sandoz, Inc.
Chemstrand Co.
Munsell
Color Engineering
National Bureau of Standards
National Bureau of Standards
Color Association
Hercules Powder Co.
Ford Motor Co.
Color Consultant

The retiring Chairman was not present and the file for the Subcommittee was not available at the time of the meeting.

A general discussion was conducted of the aims of the Subcommittee which are presently to revise the 1955 report of the Subcommittee "Survey of American Color Specifications." The files being unavailable, the notes of the members of the Subcommittee were used and some decisions about the revision were made. These were:

1. Company color cards will be deleted unless they describe or follow some rigorous color space or system.
2. Systems that are unavailable but still used or referred to in the literature will be retained.
3. Standards mentioned generally, in the 1955 report which have expanded will be expanded in the revision, for example, the Munsell Book of Color.
4. Discuss the inclusion of Foreign Standards, such as D.I.N. and French Bordeaux Tall Oil Standards, which are widely used here.
5. Solicit assistance from Subcommittee on Problem 14 for their many single number specifications, especially in relation to Section V G. Oils and Fats of the 1955 report.
6. Add a section for Building Materials and also for Metal Finishes.
7. The report will be written in alphabetical order with adequate cross referencing.
8. Delete Section IV on Instruments.

Subcommittee on Problem 10, Color Aptitude Test,
F. L. Dimmick and C. E. Foss, Co-Chairmen

By 1940, in recognition of requests from a number of sources, industrial and professional, the Inter-Society Color Council established Problem 10 to consider the feasibility of developing a test that would give a measure of an operator's capability to make valid and reliable judgments of the likenesses and differences of color samples. In industrial situations the requirements usually called for a matching of two color samples. Some attempts had been made already, but no standardized test had been developed. A number of satisfactory devices were already available for determining defects in color vision, notably the lack or deficiency of red and green sensitivity. The problem envisaged by the ISCC involved detection of differences of color by operators having "normal" red-yellow-green-blue vision. If the capacity to discriminate larger or smaller differences could be found to be distributed at various levels among the "normal" population, such information would prove to be very valuable in many lines of endeavor.

A history of the work on Problem 10 can be found in the numerous regular and special reports published by the Committee in the ISCC Newsletter and other publications during the period from 1940 to 1953. By that time, the full accomplishment of the committee was exhibited in a commercial edition of the test offered for sale through the cooperation of a member body of ISCC, viz. the Federation of Paint and Varnish Production Clubs, now known as the Federation of Societies for Paint Technology.

Detailed reports of the structure, calibration and standardization of the 1953 Edition were published in the Journal of the Optical Society of America for June 1956 (J.O.S.A. 46, no. 6, 1956, pp. 389-393.) and in the Official Digest of the F.P.V.P.C. for December, 1954. The 1953 Edition consisted of some 500 copies. By 1963 the entire edition had been distributed, and the representatives of the Federation requested that a second edition be produced. By the summer of 1964, the new edition became available. This involved not only production of materials but standardization of an initial group of 100 subjects for establishment of a new "scoring key" applicable to the new materials.

During 1965, with the cooperation of the Color Marketing Group, a member body of ISCC, accumulation of a sizable group of test scores was undertaken to provide information concerning the distribution of scores with the new materials. Up to the present, some 400 scores have been obtained. The project is being continued until the number is substantially over 500. Until the full number is obtained, only a limited statistical treatment can be carried out. The distribution of scores, at present, ranges from 45 to 105 with the median at 72. These figures correspond very closely with the scores obtained with the '53 Edition, assuring that scores obtained with the two editions are closely comparable. Scores with both editions have been obtained from a number of subjects. Statistical comparisons of the two sets of scores will be undertaken when the accumulation of scores is sufficient to make significant interpretations.

Up to the present, about 100 sets of the new edition have been produced and distributed and there is a backlog of unfilled requests. It is gratifying that so much interest in the test continues. Experience with the test development, new

techniques in producing materials, and invention of a new means of specifying the colors utilized in the test, suggest that the procedures of the original test may be extended into new dimensions. Such development will require devotion of time and effort, such as that given by many members of the Problem 10 committee over the original development period. For this, the committee needs "new blood" and such solicitation is hereby urgently made.

Subcommittee on Problem 15, Definitions of Color Terms,
Dorothy Nickerson, Chairman

Little progress has been made this year. The chairman has found that preparation of the proposed condensation from information now in the committee files entails more time than she had expected. She has asked that the work be reorganized and a new chairman be appointed in order that the work may go forward more promptly.

Subcommittee on Problem 16, Standard Methods for Mounting Textile Samples for
Colorimetric Measurement, W. L. Matthews, Chairman

The subcommittee reviewed a rough draft of eight methods for handling textile samples. Comments will be incorporated in a second draft and circulated to the members of the subcommittee. After approvals are received an interim report will be submitted to the Board. We hope to have this interim report ready for the September Board Meeting. I say interim because we also started discussions on three or four more methods. This puts us in the position of working on the revision of a report that has not been issued.

Subcommittee on Problem 17, Color in the Building Industry (Final Report)
Submitted by Milo D. Folley in the absence of Waldron Faulkner

The expansion of committee 17 was needed in order that it could handle all the problems arising in the building industry. It was felt that the resolutions adopted last year wound up the original program to a logical conclusion.

The Board of Directors have set up a new Building Industry Committee #30 which is to act somewhat as a standing committee geared to handle all the problems which may arise as well as to continue the program outlined in committee 17.

No chairman has been appointed and no definite program is yet formulated by the chairman of the subcommittees, but it is assumed that #30 will expand the activities of #17.

Subcommittee on Problem 18, Colorimetry of Fluorescent Materials,
Eugene Allen, Chairman

During the past year we organized a test to determine the important variables in running a spectral radiance factor curve of fluorescent materials. The plan was to use as many different instruments as possible, but to attempt to fix the important variables in such a way that differences between instruments should be eliminated. However, difficulties were encountered because of the fact that replicate samples sent out to the laboratories were found to differ, and also because of insufficient definition of some of the variables.

At the last meeting of the subcommittee, plans were made for running new samples and for defining the variables more closely. It was decided this time to circulate a single sample rather than to attempt replication of samples. The new round robin will be otherwise conducted with the same aim as before.

Subcommittee on Problem 20, Basic Elements of Color Education,
Randall M. Hanes, Chairman

The report of this committee was published in book form in 1963 under the title: Color: A Guide to Basic Facts and Concepts. At its October 1963 meeting, the ISCC Board of Directors approved continuation of the subcommittee for two years to:

1. Monitor reaction to the present book.
2. Examine the possibility of producing another book on a more elementary level.
3. Explore the possibility of documenting the book by additional illustrations (in the form of charts, films, and/or slides).
4. Prepare a catalog of illustrative aids for teaching color.

Reaction to the report has been monitored through use of a questionnaire to ISCC members and through examination and summary of 23 reviews that have appeared in scientific and trade journals both here and abroad. Only 81 questionnaires were returned, and detailed results from 76 of these reported at last year's meeting. As indicated in last year's report, data from the questionnaire indicated that there was substantially more support for supplementing and expanding the text than there was for rewriting. Analysis of the journal reviews (11 American, 8 British, 3 German, and 1 Australian) also points to expansion of the text as the most desirable direction to be taken by any further efforts. Furthermore, among those who have been considered as potential members of a subcommittee to produce a "simpler" text, there appears to be a strong feeling that any such text should be an individual, rather than a Council, effort.

Therefore, it is the opinion of the subcommittee that action relative to objectives 1 and 2 above should be delayed until such time as a revised edition of the book is in order.

With respect to objectives 3 and 4, the subcommittee feels that the preparation of a catalog of illustrative aids and the provision of supplementary illustrations should be the work of a subcommittee organized specifically for that purpose. This matter has been discussed with the chairman of the Problems Committee and presented at the open meeting for new problems.

Subcommittee on Problem 21, Standard Practice for Visual Examination of Small Color Differences, Sam Huey, Chairman

The proposed method for Standard Practices for Visual Examination of Small Color Differences was reviewed, as expected there were many corrections and additions made by those present. The editorial changes were quickly dispatched.

There was considerable discussion in regard to the specification of the light source. The new proposal eliminated reference to the Abbot-Gibson curve as being the standard. It was pointed out that this was a theoretical curve and Judd's new reconstituted daylight should be used in its place. Mr. Macbeth stated that when any reference is made to the color rendering index, the color temperature of the light source must be within + or - 100 K of the standard. Our proposal stated the color rendering index must be 92 or greater. The method of determining this index can be obtained from the C.I.E. report 13 E 132. Copies of the report can be obtained from Lew Barbrow of the National Bureau of Standards.

In view of the prevalent use of fluorescent lamps for color matching, it was suggested that this type of light source be included in our method.

The opinion of those present varied as to what type of fluorescent lamp should be specified. It was resolved that the method should specify a production type, standard cool white, fluorescent lamp. The lamp should have a color temperature of 4400K + or - 100 K. This light source will be included with the other two light sources.

The method, as submitted, specified sample size in terms of rectangles. One member of the group inquired if this ruled out circles and triangles which he used. The discussion, which followed, indicated it is the area of the sample that is important, which was what the method was attempting to convey.

The viewing distance was not specified in the present method. This should be related to sample size so it was agreed that the distance should be such that the sample would be viewed in a 10° field.

All those present were satisfied with the method when the necessary corrections and additions were made, therefore the method, as corrected, will be circulated to the group. If it is accepted, it will then be given back to the problems committee. It is hoped to do this before next year as many of those present expressed the desire to have something published as soon as possible.

Subcommittee on Problem 22, Procedures and Material Standards for Accurate Color Measurement, Fred W. Billmeyer, Jr., Chairman

About 40 people attended the 9th annual meeting of Subcommittee 22. The agenda given in the last Newsletter was followed closely. The Chairman announced little progress during the year. The rigorous calibrating and operating procedure for the G. E. spectrophotometer has been tested in three laboratories. It is now about ready for use in the Subcommittee's Round Robin II, and a schedule for this effort was laid out.

Since he had not been able to initiate other Subcommittee work, the Chairman asked Mr. Robert Charvat to act as group leader for Round Robin III, involving routine industrial performance of all spectrophotometers. The selection of samples for this effort was broadened over those in Round Robin I to include specimens with various degrees of gloss, for measurement with specular component both included and excluded.

Professor E. J. Francis agreed to act as Group Leader for Round Robin IV, involving color-difference measurements. The general nature of the samples and instructions for this effort was discussed. It was planned to initiate all three Round Robins as soon as practical.

The Chairman outlined research in progress at The Rensselaer Color Measurement Laboratory as it applied to the work of the Subcommittee. The meeting closed with a general discussion of the value and nature of material standards for photometric and wavelength scales, white reflectance standards, and colorimetric and color-difference standards. This discussion did not lead to the formulation of any new short-term objectives for the Subcommittee, but will be placed on next year's agenda for continuing review.

Member List

Problem 22, Procedures and Material Standards for Accurate Color Measurement:
F. W. Billmeyer, Jr., Chairman, and C. E. Foss, Vice-Chairman, and I. A. Balinkin, R. M. Evans, R. S. Hunter, Advisors

Recorder: S. L. Davidson

Group Leaders: R. A. Charvat
F. J. Francis

Consultants: N. N. Dummer
H. Hemmendinger
R. M. Johnston

Subcommittee on Problem 24, Catalog of Color Measuring Instruments, Ruth Johnston, Chairman

About 40 people came to the first organizational meeting of this committee.

The scope of the committee was reviewed. The first item on the committee's program was a review of the Factors to be Included in the Catalog. A preliminary outline had been prepared by the chairman with the aid of Dr. Henry Hemmendinger. This was amended and enlarged with the help of those present.

Factors to be Included in the Catalog

- I. Basic factors in the specification of what is to be measured, including conditions of illumination and viewing, type of light for which color description is given, and form of presentation of measured quantities.
- II. Other aspects of the instrument characteristics of importance in the evaluation of the measured data, including type of wavelength control device, type of detector, and description of data reduction methods.
- III. Other accessories available.

IV. Editorial comment, including the following:

- A. The committee will refrain from interpretations of and additions to the manufacturer's submitted data. The committee will, however, use its discretion regarding the deletion from the catalog of any information which, in its judgment, and in relation to other data being reported, fails to properly describe the equipment.
- B. The committee will provide an introductory guide to the use of the catalog. To the best of its ability it will attempt to provide the prospective user with guidelines to use in defining his problem in terms which will aid him in getting meaningful and useful information from the catalog.
- C. The committee accepts no responsibility for verifying the information in the catalog which is supplied by the instrument manufacturer.

V. An annotated bibliography.

After working out the details of this aspect of the committee's work, some basic philosophy concerning the aims of the committee, the practical working details, and the order of the possible tasks were discussed. It was decided that the first effort of the committee would be directed towards American instruments and would include only those foreign instruments which are sold and serviced by an American representative. Later, the groups of instruments to be added to the catalog would be those foreign instruments which are not sold by American representatives, instruments which are based on visual detection, and those instruments designed for special purpose applications. The committee decided that only instruments which are currently available commercially will be included. As new instruments become available or as new models of existing instruments become available, additions will be made to the catalog. Where possible, models will be described also in terms of the manufacturer's serial numbers.

A small working committee was established to send out letters to the manufacturers asking for the required information on their equipment. An announcement will also be published in several journals. The information received will then be sent to individual members of the committee for follow-up and for compilation for the catalog. This individual will also be responsible for preparing the editorial comment and bibliographical material. No manufacturer's representative will be responsible for preparing the material for his own company's instrument. The list of instruments was then reviewed and several additions made to the list prepared by the chairman. Radiometers, spectrophotometers, abridged spectrophotometers, colorimeters, and auxiliary equipment for data reduction will be listed separately.

Subcommittee on Problem 25, Determination of the Strength of Colorants,
Charles G. Leete, Chairman

At the April meeting, the first meeting of Subcommittee 25 was held with an attendance of approximately twenty members.

During the meeting, the committee was unable to formulate an acceptable definition of Strength of Colorants. Therefore, the problem of a definition is temporarily put aside in order to tackle some areas on which there was common ground.

The committee decided to:

1. Collect literature references for Strength of Colorants in general. This was to include all references from recognized published sources such as books, journals and house organs.
2. To collect specific references of company methods for determining the strength of dyes in solution.

The references called for under Item 1 should be sent to the attention of:

Mr. Charles G. Leete, Chairman
Subcommittee 25
Hunter Associates Laboratory, Inc.
9529 Lee Highway
Fairfax, Virginia

The specific references in Item 2 should be sent to the attention of:

Mr. Robert F. Hoban
Sandoz, Incorporated
61 Van Dam Street
New York, New York

It should be noted that in both cases, the committee is asking for references only and not complete copies of the methods themselves. It is hoped that this task may be accomplished within the next ninety days and that a published list of references will be available for the next annual meeting.

Subcommittee on Problem 26, Determination of Sets of Maximally Different Non-Fluorescent Colors, Kenneth L. Kelly, Chairman

The first solution to this problem was published in Color Engineering under the title Twenty-Two Colors of Maximum Contrast as given under the report of Subcommittee on Problem 2, Color Names. A copy of this paper has been distributed to each member of ISCC.

The first statement of this problem to this Chairman directed that ISCC-NBS centroid colors were to be used. The present statement of this problem as given on pages 2 and 3 of ISCC Newsletter 177-178 reads "It would also be desirable if all of the colors were to be taken from easily available standard colors such as the ISCC-NBS centroid colors." This will allow a certain amount of flexibility in making refinements of the present selection if necessary. The six additional requirements added to the original statement of this problem may, after adequate study, require slight refinements in the choices of the 22 colors. Hopefully, four of these six additional requirements have already been met.

Subcommittee on Problem 30, Color in the Building Industry, Milo D. Folley, Chairman

A limited group met to discuss a program for the new committee. Those present were Elizabeth Burris-Meyer, Eloise Voss, Ken Kelly, Charleton B. Spencer, Walter Granville, Helen Craig, Alex Styne, Martha Jungerman and Milo D. Folley,

temporary chairman. Reporter Stella Margold attended also. After a past history outline and an explanation of the new committee number, the chairman led an interesting discussion concerning the method of putting the Universal Color Language into the hands of the public and the building industry. Mr. Kelly felt that the technical report which he authored should be translated into language of the trade and published wherever it might be accepted.

Member Alex Styne presented a developed filing system for the layman to file colors under the Universal Color Language. Discussion involved the publication of this and members of the committee felt that every effort possible should be made to publish this as well as the color language specification.

A plea is to be made to the members of ISCC to encourage representatives of the various professions and manufacturers to plead for the use of the Munsell notations in the identification of colors in the building industry. The committee has agreed to contact the press and make every effort to expand the interest in the color specification. Members agreed to meet throughout the year and organize their information on publications.

Cooperation with the CMG is anticipated and the completion of the program will include problems of tolerances, textures, variegated materials, and viewing sources.

REPORT FROM THE AMERICAN
ARTISTS PROFESSIONAL LEAGUE
DELEGATES, FRANK C. WRIGHT,
CHAIRMAN

It is my privilege and pleasure to bring you greetings from the American Artists Professional League on the occasion of your Annual Meeting.

"I also wish to record our personal and official gratitude for your fine and unique work in the field of color, and to express our congratulations for the technical and organizational work performed under the stewardship of your retiring President, Mr. Ralph Pike.

"When we say that your work is unique, it can be likened to the analogy used by Dr. Carl Jung, the great psychiatrist, in speaking of individual persons. He said that we are like islands appearing to be separate entities, but that hidden beneath the water, all are connected by instinctual and subconscious forces. The fine work of your project committees, the excellent papers by Dr. Kenneth Kelley and others are fairly technical to many artists, but the ISCC performs an irreplaceable job by motivating them, manning committees and then pulling committees together into useful and meaningful form.

"No one else is rendering such a service for the vast field of color.

Frank C. Wright
Chairman of Delegation

REPORT FROM THE AMERICAN
ASSOCIATION OF TEXTILE
CHEMISTS AND COLORISTS
DELEGATES, ROLAND E.
DERBY, JR., CHAIRMAN

The important role of color in textile design is emphasized by the millions of yards of colored textile materials produced annually. The end products are the results of permutations involving hundreds of dyes and dozens of fibers. Simple considerations indicate

the inevitable interest textile dyers and designers have in all aspects of color science.

The results of their experiments and theories are contained in the various papers presented by workers in these fields during 1965. In the accompanying bibliography, fourteen papers directly concerned with color or color measurement are listed. These appeared in The American Dyestuff Reporter, The Journal of the Society of Dyers and Colorists or the Textile Research Journal.

A Committee on Color Technology is one of several AATCC Research Committees. In the last year, they have been specifically concerned with defining, in colorimetric terms, the magnitude of color difference that constitutes an appreciable fade for the L-4 Blue Standard. For commercial purposes, this work has important implications. In this study, they have been cooperating closely with The National Bureau of Standards. If this first step is successful, it is hoped that the procedure will be broadened to include other samples typical of the textile color gamut.

Many members of the AATCC were active participants at the Williamsburg Conference on Instrumental Formulation. Formally, the AATCC was most pleased to be represented in the role of a participating member-body.

REPORT FROM THE AMERICAN
CERAMIC SOCIETY DELEGATES,
H. D. BIXBY, CHAIRMAN

During 1965 the Ceramic Industry continued active participation in the description, measurement, control and standardization of color in the broad areas of production,

research and development, and marketing.

The increasing use of color in industrial and domestic applications has been evidenced by the significant increase in sales noted by ceramic pigment manufacturers, as well as by ceramic manufacturers of additional colors in their product lines.

At the consumer level, national advertising has promoted increased use of color, as well as texture, in such fields as dinnerware, wall tile and interior decoration. External use in architectural applications has employed the additional use of color in glass, porcelain enamel, face brick, glazed brick, terra cotta and external wall tile.

The ceramic industry is utilizing color instrumentation and color notation systems not only for quality control within a given plant, but also to provide color control between industries and in various product lines. Problems in metamerism have been recognized and through the cooperation of pigment manufacturers and ceramic color technicians, much progress has been made.

In 1966 a considerable increase in color activity is anticipated in the ceramic industry, based on a growing awareness of the color problems which are well recognized by ISCC members. No specific color problems have been received during the past year which would merit submission to the Council for consideration by the Problems Subcommittee.

REPORT FROM THE AMERICAN
INSTITUTE OF ARCHITECTS
DELEGATES, WALDRON FAULKNER,
CHAIRMAN

Outside of ISCC, there is little to report in regard to activity in the color field. I understand that the Institute has embarked on a color specification project under the

direction of Elmer Lundberg of the Pittsburgh Plate Glass Co. Mr. Lundberg has contacted the writer for assistance on this committee and was also

referred to Waldron Faulkner and other members of the ISCC for technical assistance. Of these, Dorothy Nickerson, Ken Kelly and Everett Call were particularly noted. When the A.I.A. committee begins its function, we shall endeavor to organize it with the ISCC.

Expressions of interest in the proposed educational film and possible financial contributions have been discussed to no conclusion. The Institute will cooperate in the dissemination of information on color when it is available.

Submitted by Milo D. Folley in the absence of Waldron Faulkner

REPORT FROM THE AMERICAN
INSTITUTE OF INTERIOR
DESIGNERS DELEGATES,
BEATRICE WEST, CHAIRMAN

The American Institute of Interior Designers had a very colorful year during 1965.

Color provided the eye-catching appeal in model rooms created by A.I.D. members for their regional conferences, scholarship competitions, and in room settings to be shown in magazines and stores throughout the country -- all which greatly influence public taste, awareness of color and the possibility of color usage in homes.

Some of the most interesting new ways with color, including the brilliance of pure black and white; unexpected patterns in wall panellings and some unexpected uses, were shown in the "Ten Best-Dressed Rooms" shown at the National Design Center last Fall in New York City. The ten rooms were created by leading A.I.D. members for ten current favorites of the Entertainment World and showed great variety and individuality in the use of color. Model rooms in the 22nd Annual Cleveland Home and Flower Show, which was attended by more than 100,000; also in Miami where room creations collaborated with hair coloring fashions, were two of the most interesting demonstrations of the tie-in of color in home furnishings and other industries.

The Committee on Historic Restoration, which in previous years has participated in restoring or making complimentary additions to historic buildings, such as the Library in the White House, various rooms in the Blair House and the President's guest house, Lemon Hill, has this year finished the restoration of the Chatillon-De Menil mansion in St. Louis. The A.I.D. are presently working on the new annex of Gracie Mansion which will include a spacious Ball Room opening onto a terrace overlooking the grounds and the East River. Mrs. Francis Henry Lenygon, F.A.I.D., Chairman of the Furnishing Committee, says color will be an important factor in the decoration.

The American Institute of Interior Designers' 21st Annual International Design Awards were presented to manufacturers and designers who contributed to the advancement of the interior furnishings field. The purpose of the A.I.D. awards is to make known to the consumer public what is available in good design and color, and to commend the designers and manufacturers. The winning designs were selected from over four hundred entries submitted from both here and abroad and will be exhibited at the National Design Centers in Chicago, New York, Miami, Los Angeles and will also be shown in leading department stores throughout the country. Among the winners were colorful products such as the following:

1. Jack Lenor Larsen's "Water Lillies," a moss green drapery fabric printed with a revolutionary batik process on cotton velvet.
2. "East Indies Collection" of rugs by Paul E. Letz for Cabin Crafts.
3. Maija Isola's "Ataman" design for Printex sheets and pillow cases for Printex of Finland.

The American Builder Magazine presented its 2nd "Innovation Awards" to ten leaders in the Housing Industry during the National Association of Home Builders convention in Chicago last December. Among the ten, were Beatrice West and Beatrice West Studios, Inc. "for creating home furnishings and color styling techniques which have considerably improved the environment in which we live." For outstanding accomplishment in participating with Beatrice West Studios, Inc. special citations were given to three manufacturers: Kroehler Manufacturing Co., Burlington House Fabrics and James Lees and Sons Co., "for innovation in creating a home furnishings merchandising program for the housing industry." The purpose of the Innovator Awards was "to encourage acceptance of new ideas and design trends, to study all established products being improved and to use new products in interesting, ingenious and effective ways."

A.I.D. members are busy in many other associations promoting the use of color such as The Color Marketing Group, which is also an association member of the ISCC.

REPORT FROM THE AMERICAN OIL
CHEMISTS' SOCIETY DELEGATES,
A. G. PAYNE, CHAIRMAN

No new problems were undertaken by the Color Committee during 1965. The Fats Analysis Color Subcommittee is continuing development work on suitable viewers for

use with the new solid glass FAC color standards. The new standards, with specific colorimetric specifications, have replaced the old unstable color solution standards.

The following articles were published in the Journal during the past year:

Modified Color Stability Test for Fatty Acids. Geoghegan, J. T., JAOCS 42, 815, (1965).

A Light Test to Measure Stability of Edible Oils. Moser, H. A., Evans, C. D., Cowan, J.C., and Kwolek, W. F. JAOCS, 42, 30, (1965).

REPORT FROM THE AMERICAN
PSYCHOLOGICAL ASSOCIATION
DELEGATES, JO ANN KINNEY,
CHAIRMAN

I am very proud to take over as Chairman of the APA delegation to the ISCC and very happy to be doing so at a time I consider to be most stimulating for all of us involved in color vision. As Dr. Hurvich has reported throughout the last few years, the contact and cross-fertilization between physiologists and psychologists has been expanding tremendously and the concrete results in terms of understanding of color vision have mushroomed. So much so in fact that I often think we are just on the verge of having a physiological theory for the psychological facts of color vision. This optimistic viewpoint

was the theme of a symposium on color vision presented at the annual meeting of the National Academy of Sciences last year. The program included an historical summary of the controversy between trichromatic and opponent theories of color vision by Dr. Judd, the photochemical work of Wald and of MacNichol which indicates three types of photopigments and the investigation of both Hubel and Wiesel and of MacNichol on the neural encoding showing an opponent-type response. Dr. Graham summarized the symposium by stating that Young-Helmholtz trichromatic theory may now be established at the receptor level while the transmission of neural excitation from the receptors to higher centers probably follows Hering's opponent-colors theory.

This idea of a synthesis of the two major theories of color vision is almost as old as the theories themselves. It has long ago been espoused by many of the members in this room -- quite explicitly by our APA delegates, Leo Hurvich and Dorothea Jameson and by Robert Boynton. The exciting point for me, however, is to be living and investigating color vision at a time when over 100 years of controversy and speculation appear to be ending -- and ending in a compromise. As an aside, I would like to point out that a similar situation exists in the field of audition -- the 100 year old battle between the views of Helmholtzians and his opponents on a physiological theory of hearing also appears to have ended in a compromise.

But let me hasten to add, before I leave the impression that our work is finished and we can now all become anthropologists, that it is only the more meaningless speculation that is over -- the real work of understanding our most unique and wonderful sense of color vision is just beginning. Going over the list of investigations of the work of our APA delegates will attest to this.

Dr. Boynton's group at the Center for Visual Science is working on a wide variety of color problems, both animal and human. These include studies of color naming, investigations of chromatic adaptation for normals, color defectives, and for the macaque, and two more papers on the heterochromatic threshold-reduction factor. Dr. Boynton also reports the acquisition of a PDP-8 digital computer in the Center to be used for research.

Dr. Brown's investigations of color vision in the cat have led him to conclude that not only do they definitely have color vision but also that it appears to be organized oppositely.

Dr. Helson has just concluded a major project on the pleasantness of object colors as affected by the light source; we look forward to seeing the results of this extensive investigation.

Dr. Hsia has reported that Dr. Graham, who is on sabbatical leave, that color induction has been the object of their attention this past year.

Drs. Hurvich and Jameson have joined those interested in the color vision of fish and are investigating saturation discrimination -- a unique endeavor, to my knowledge, which should prove highly interesting.

The problems studied by my own group at New London have included considerable work on peripheral color vision and on color vision with brief exposure durations. We have also gone underwater to study visibility of fluorescent and non-fluorescent paints there.

A number of our APA delegates are currently authors or editors of books. An extremely important volume for us in vision is the 637 page volume Vision and Visual Perception (John Wiley, publishers) edited by Clarence H. Graham. This book includes a number of chapters on color vision, by both Dr. Graham and John Lott Brown.

Harry Helson is co-editor of a volume Contemporary Approaches to Psychology (D. VanNostrand, publishers), to be published this year, which will include chapters on sensory processes and perception.

Leo Hurvich and Dorothea Jameson are authors of the just published The Perception of Brightness and Darkness (Allyn & Bacon, publishers) and are currently working on a new volume on color.

Eighteen articles on color were published during the last year, as submitted to me by our APA delegates.

REPORT FROM THE AMERICAN SOCIETY FOR
TESTING AND MATERIALS DELEGATES,
GEORGE W. INGLE, CHAIRMAN

In prior years, reference has been made to the wide spectrum of color-related activities in ASTM. More recently, greater

emphasis has been placed on fewer, more specific activities of greater value, without diminishing the value of the many other activities not yet to a point of fruition.

Continuing this trend, I call to your attention four major contributions of ASTM's Committee E-12 on Appearance of Materials. The Annual Report of that Committee in 1965 contained four Appendices, published for information only:

- I. Proposed Recommended Practice for Description and Selection of Conditions for Photographing Specimens;
- II. Proposed Method of Test for Indices of Whiteness and Yellowness of Near-white, Opaque Materials;
- III. Proposed Recommended Practice for Spectrophotometry and Description of Color in CIE 1931 System; and
- IV. Proposed Method for Absolute Calibration of Reflectance Standards.

You should recognize that the first and last of these are truly novel. They are "first-time" technical achievements. The other two reflect long overdue refinements of technique contributed by many authoritative experts. All four will be balloted upon prior to the Annual (June) Meeting of ASTM; if accepted, they will become ASTM Standards. The third--on Spectrophotometry and Color--is also simultaneously moving towards adoption as a Recommendation by the ISO (International Organization for Standardization) via Technical Committee 61 on Plastics.

Another noteworthy activity is that of subcommittee 26 in Committee D-1 (Paint, Varnish, Lacquer and Related Materials) in revising Method D-2244 for Instrumental Evaluation of Color Difference to include the CIE (u,v,w) uniform color-space system. Another activity in this group of color experts in the paint field has been the development of a visual color difference evaluation method using a gray scale.

There were no color-related articles in the ASTM journal "Materials Research and Standards" in 1965. One remotely pertinent paper on the "Characteristics of the Light Flash Produced Upon Impact of a Liquid with a Surface" discloses a little-understood source of light.

S. M. Delorso, R. E. Rothman, 5, 10: 525-528 (October 1965).

In D1684-61, Recommended Practice for Lighting Cotton Classing Rooms for Color Grading, the daylight target standard, and the method of expressing special tolerance limits in Section 2 are being adjusted to bring them into agreement with 1965 recommendations of the CIE. This means that the spectral distribution curve and data for 1965 CIE 7500K daylight are being substituted for the earlier Abbot-Gibson daylight standard, and that "a color rendering index no lower than 92, as determined by the General Color Rendering Index recommended in 1965 by the CIE" is being substituted for the interim "conformity index" method heretofore used in the standard for expressing the spectral quality tolerance limits.

REPORT FROM THE COLOR ASSOCIATION
OF THE UNITED STATES, INC.
DELEGATES, MIDGE WILSON, CHAIRMAN

In keeping with the spirit of the times, we commence this report with SUPERMAN! BATMAN! POW! Color is HERE! We sense the motion and the

commotion; wheels within wheels; everything spinning - tensions building up, color upon color adding to the vibrations. We're on a color binge. We've been taking it in over-doses. Pressures and tensions are reflected in our color environment. We have so much color that color alone no longer has an impact. It is the way in which color is used that makes news.

This is all part of the tremendous revolution which we are experiencing. We are overpowered by the new man-made world, dominated by architecture, automation and space exploration. Thus, it is the economic world, not the realm of fashion, which provokes our universal color trends, touching all types of products and industries simultaneously.

For many months disproportionate emphasis has been placed on the young market -- catering to the teen-agers' every whim. Uninhibited color matched this uninhibited attitude. The pendulum is beginning to swing. Already, we see remote signs of a developing color change. More mannerly clothes are in the offing and with these will come a more sophisticated application of color. Taste will supersede temperament.

We see another change in the world of color. We are progressing from style and fashion considerations to increased concern for the psychological aspects of color. Having produced a very colorful world, we must now give more attention to the immediate effects of this changed environment.

For a long time "fashion" color talk was widely separated from "scientific" color talk. The twain now meets. With the dominance of our scientific world, "fashion colors" must now be interpreted within the framework of scientific and economic factors. An excellent example of this is found in the field of paper products, which have not only embraced fashion colors extensively, but moved from function to fashion and now invade the fashion field with printed paper dresses!

MANY CHANGING CONDITIONS ARE REFLECTED IN OUR WORLD OF COLOR:

1. As countercurrent to the sameness of mass production, we find the yearning for individuality expressed through the distinctive use of color.
2. In every field we see growing emphasis on coordination and greater opportunity for it because of the wider range of colors offered in all types of products.
3. This growing insistence upon color coordination is challenging brand name supremacy. For many years manufacturers have spent large sums of money on brand name advertising, secure in the thought that they were building brand loyalty. This is now slipping. So concerned is the consumer with color and so conscious of color planning, that from among many competitive products she will choose not the brand, but the container color which best compliments her color scheme!

THUS WE FIND:

1. A trend for clear, clean colors,
2. The same colors important in many fields at the same time;
3. Combinations and groups of colors more important than any one color family,
4. Light, bright and deep colors the year around. We no longer have seasonal colors,
5. Colors used in the manner of neutrals,
6. And coming up: orange and copper tones as the new excitement color (instead of reds) and the flourishing of violet tones.

At last, the realm of science and the realm of fashion, which for so many years seemed worlds apart and spoke such different languages, have met and merged through the medium of color.

* * * * *

Concerning standard colors: we are currently completing the new DEPARTMENT OF DEFENSE BUTTON COLOR CARD, which will be issued shortly; and are working on the revised DEPARTMENT OF DEFENSE STANDARD COLOR CARD FOR SEWING THREADS. Changing world conditions are reflected in the increased number of requests we have had recently for color standard swatches for Government colors.

We have completed the psychological research on the initial group of "normal" people. A report is being written and will be released soon.

REPORT FROM THE COLOR
MARKETING GROUP DELEGATES,
L. A. GRAHAM, CHAIRMAN

Ordinarily, this report would cover the past calendar year; however, CMG has had three meetings since ISCC last met and these are noted.

In May 1965, the Board of Directors elected Dwight L. Wardell of Sandoz as President, Walter Olson of Valpar Corporation as Vice-President, and reelected

Beatrice West of Beatrice West Studios as Secretary and Joseph P. Radigan of Kentile Floors Inc. as Treasurer. Jerry Moran of Buick was elected in November to the Board of Directors.

In May 1965, CMG met in New York under the theme "Color at Work". The meeting consisted of ten workshops repeated three times each so that all those in attendance could participate. Dr. Deane B. Judd addressed the banquet audience at the Waldorf-Astoria.

In November 1965, the Group met at the Plaza in New York to consider the "Color Revolution" as it related to four phases: Science, Television, Newspapers, and color reproduction including 3-D printing. Workshops were also held and "Dr. Farbocoluersky, Kolir Expert" (alias Boyd Kimmins of the Interchemical Corporation) regaled the banquet audience. The 1965 Color Fair was exhibited, showing further refinement in presentation. OP ART was shown.

In February the CMG 1964 and 1965 Color Fair Exhibits were shown in Atlanta, Georgia, at the Textile Division of the American Society For Quality Control.

In March 1966 CMG enjoyed its best meeting to date in Colonial Williamsburg, Virginia. With the theme "Color Then and Now", each speaker compared colonial days and the modern American marketplace. Workshops amplified and supplemented the main subjects. Faber Birren addressed the banquet audience, giving emphasis to the meeting theme. Two excellent films were shown, the new "Seeing Color" by Interchemical, and whimsical review of color history by Allied Chemical. Everett Call was program chairman. It is an interesting point to note that eighty percent of those who have spoken at CMG meetings are now members--without excessive arm twisting I might add.

For Fall 1966, CMG will meet in Chicago December 1, 2. Walter Olson and Earl Ogier are co-chairmen.

In June 1966, the 1965 Color Fair will visit San Francisco and in September an entirely new 1966 Color Fair will be unveiled at the International Wood Working and Furniture Show in Louisville, Kentucky.

The single most important objective of CMG continues to be the promotion of, and education and training for, more knowledgeable use of color in the marketplace and throughout industry. A major working tool has been UCL (Universal Color Language) based on the NBS-ISCC centroid system.

Like ISCC, CMG is grateful to Color Engineering for its consistent coverage of CMG activities. Also to be noted is the continuing support given to CMG by many other member bodies of ISCC, such as AIID and NPVLA.

Louis A Graham
Chairman of Delegation

REPORT FROM THE DRY COLOR
MANUFACTURERS' ASSN. DELEGATES,
MAX SALTZMAN, CHAIRMAN

The Dry Color Manufacturers' Association has continued to work with both the ISCC and other organizations in color education. The DCMA was one of the sponsors of the Williamsburg Conference. Through its Technical Committee it is helping to update information of the toxicity of pigments by working with Prof. H. C. Hodge of the University of Rochester. One of its members is active on

the Colour Index committee of the AATCC and is helping to eliminate errors and improve the quality of the technical data on pigments which is printed in the Colour Index.

Its aid to education has helped to support the work of Prof. F. W. Billmeyer, Jr., at RPI by a grant-in-aid.

Its regular meetings this year featured 3 speakers on technical matters relating to pigments.

In the coming year we will continue to work with Prof. Hodge in helping to revise the section on pigments in the widely used book: "Clinical Toxicology of Commercial Products."

Further work is planned, in cooperation with individual member companies as well as with the ISCC subcommittee 25 on specifications and test methods of pigments.

REPORT FROM THE FEDERATION OF
SOCIETIES FOR PAINT TECHNOLOGY
DELEGATES, S. LEONARD DAVIDSON,
CHAIRMAN

As predicted in our report of a year ago, activities of the Federation in the field of color have increased during the past year.

At the annual meeting of the Federation, the highlight of the technical program was the Matiello Lecture, "Color Measurement and Tolerances" presented by Dr. David MacAdam. A panel discussion on the subject of "Color as an Analytical Tool" which was co-sponsored by the Inter-Society Color Council was also presented with Miss Ruth Johnston, Dr. Fred Billmeyer, Dr. Eugene Allen, Mr. Hugh Davidson, and Mr. Max Saltzman as the members of the panel. The papers and discussion that followed are being edited and it is hoped to have reprints available for all of the members of the Inter-Society Color Council.

At this meeting, the Armin J. Bruning Award for outstanding contributions to the Coatings Industry went across the sea for the first time when it was presented to Dr. D. R. Duncan of the Paint Research Station in Teddington, England.

The bibliography of 12 articles which was submitted with this report is evidence of the work being done in the field of color by the Coatings Industry. This will be the last biography showing "The Official Digest" as the Federation Publication. As of January 1, 1966, the name has been changed to "The Journal of Paint Technology" with a change in format to a larger size.

We did participate in the Conference at Williamsburg and want to thank the Inter-Society Color Council for having it, as many of our members received a great deal from it.

REPORT FROM THE FOLDING PAPER BOX
ASSOCIATION OF AMERICA DELEGATES,
NELSON G. CURTIS, CHAIRMAN

No report.

REPORT FROM THE GRAVURE TECHNICAL
ASSOCIATION, INC. DELEGATES,
OSCAR SMIEL, CHAIRMAN

GTA Proofing Ink Standards have been re-affirmed this year as to hue, grayness, and intensity. One standard exists for all supplements using newsprint, another for a group of magazines, such as "17", T. V. Guide, Ingenue,

and a third for Woman's Day, Good Housekeeping, Dell Publications, MacFadden Publications, Esquire, and Playboy.

Type of paper surface, advertiser's product and price of ink have a bearing on the choice of ink used by some magazine publications. To avoid the possibility of ink suppliers inadvertently drifting from the Standard set for proofing inks supplied to engravers and printers, spectrophotometric readings and other pertinent data are kept on file at the offices of the Gravure Technical Association. This, in addition to GTA printed tone scales which are used by all engravers and printers to check ink, progressive proofs and photographic positives, has a tendency to keep the proofing ink, hue, grayness, and intensity at a constant level, and tends to improve uniformity of reproduction in the Gravure publication printing industry.

Next year, we hope to be able to report on the completion of a four color overprint chart we intend to print in all Standard inks, and on all available publication stocks or paper surfaces. This chart will be an aid to engravers, printers, and art directors of advertising agencies in preparing and analyzing color copy to be reproduced by Gravure printing.

REPORT FROM THE ILLUMINATING
ENGINEERING SOCIETY DELEGATES,
NORMAN MACBETH, CHAIRMAN

Since there was a jointly sponsored IES -
ISCC symposium on color as a feature
session at the National Technical Con-
ference of the Illuminating Engineering

Society in 1964, the papers resulting from this color symposium were published in ILLUMINATING ENGINEERING during 1965. They were as follows:

1. The Spectral Distribution of Typical Daylight as a Function of Correlated Color Temperature
2. Color Rendering of Light Sources: CIE Method of Specification and its Application
3. Effects of Wavelengths of Light on Physiological Functions of Plants and Animals

In addition, the following papers on color appeared in ILLUMINATING ENGINEERING in 1965:

1. Chromaticity and Color Rendition of Light Sources from Fundamental Spectroradiometry
2. Report of Color Committee
3. Spectral Distribution of Typical Daylight as a Function of Correlated Color Temperature

As a result of improved technology in the manufacture of fluorescent phosphors, the better use of spectroradiometry and more regular use of the CIE method of specifying the color rendering of indexes of light sources, lamp manufacturers have made some improvements in the color rendering of fluorescent lamps.

In addition, the lamp companies are gradually introducing additional new sources, such as the mercury iodides and the special sodium lamps, with additives, which are tremendous improvements over all previous forms of sodium and

mercury lamps from the point of view of color rendition, and also from the point of view of efficiency. Some of the newest lamps have efficiencies well exceeding 100 lumens per watt.

The future of light sources is extremely challenging and must, as a requirement, take into consideration the spectral energy distribution of these light sources, as related to seeing color.

Respectfully submitted,

Norman Macbeth, CHAIRMAN

REPORT FROM THE INDUSTRIAL
DESIGNERS' SOCIETY OF AMERICA
DELEGATES, R. SPILMAN, CHAIRMAN

APPLIANCES AND HOUSEWARES

ROBERT HOSE, CONSULTANT

Increase in the use of charcoal grey accented by gold and/or aluminum for use on control panels of electronic equipment and, in some cases, on major appliances.

In the appliance field stronger and rather different colors are being used; orange, brown and shades of green. Applies to floor cleaning equipment.

VICTOR SCHRECKENGOST, CONSULTANT AND EDUCATOR

INTERIOR APPLIANCES: See a definite trend to high contrast neutrals; Off-Black with white-white: Char-Brown with warm-white. High intensity, brilliant color accents in controls, etc.

BICYCLES and OUTDOOR WHEEL TOYS: RED still good in toys but of new transparent, high reflective type.

Bicycles: Off-beat colors; best magenta; lime; Burnt Orange; Gold; Wisteria; All brilliant, transparent finishes: Trimmed in high contrast analagous colors:

HOUSEWARES: Dinnerware: WHITE-WHITE still good and will no doubt continue as top choice: Brilliant, bright pure color accents in glazes and patterns. Analagous schemes seem good. Yellow-Orange-Red etc.

SCHERR AND MCDERMOTT, CONSULTANTS

CONSUMER

Two directions: brilliant middle value colors with more emphasis upon applied trim and poorly selected decorations; two - pressure sensitive wood grains in everything from electric toothbrushes to truck cab interiors.

DONALD L. MCFARLAND, LATHAM, TYLER, JENSEN, CONSULTANTS

Strong, cheerful colors seem to be on the increase with orange and combinations of orange and yellow-orange leading the way. Soft oranges, such as "pumpkin" are giving way to stronger values.

Antique gold stays strong and warm greens, such as olive, are still prevalent as conservative colors. Off-white (e.g. putty) is basic in wall colors with sharper colors as accents.

RAYMOND CASSIDY, REMINGTON ELECTRIC RAZOR AND PORTABLE TYPEWRITER DIV.

We have incorporated an instrumentation look into our new product line, using black, white and silver; and utilizing a spot of raw color merely as an accent.

ARTHUR N. BECVAR, MANAGER, IND DESIGN, MAJOR APPLIANCES, GENERAL ELECTRIC

For some time Avocado and the other olive tones have been in demand as a top decorating color in other areas of the home, and General Electric decided to make it available in the kitchen on appliances and countertops to coordinate decorating efforts.

General Electric introduced Avocado, a new shaded color in 1966. Avocado harmonizes with most colors and kinds of wood. It is a nature color that brings the out-of-doors inside and complements patio living.

Coppertone, still a favorite in many sections of the country, ranks with white as popular color choices.

CLARENCE F. GRASER, CORPORATE DESIGN DIRECTOR

First, the most significant color is in the 'olive family' such as the moss green and avocado colors. They are now being introduced on hard goods. The use of these colors will continue to expand and probably will be the most significant color trend for 1967 and 1968. The general trend of off-white colors and beiges to go with the new lighter shades on wood finishes, will continue at the expense of the currently popular dark brown "copper-tone" colors and dark wood cabinets.

AUTCMOTIVE

DAMON C WOODS, CHIEF INTERIOR STYLIST, FORD STYLING CENTER

Black is in apparent decline - white to a lesser degree, dark blue - maroon and green are increasingly popular. Beiges and green-gold metallics active. Red and turquoise, strong-yellow showing more strength, blues prevail and lead as the most preferred color family.

We continue to offer stimulating feature colors in appropriate models as exemplified by the successful 1966 Emberglo colors.

In summary black is declining in deference to the rich deep-toned colors previously mentioned.

Trends indicate noticeable consumer sophistication by increasing sales of models with custom type vinyl covered roofs on cars having reserved interior colors industry wide.

S. L FAHNESTOCK, MANAGER, DESIGN - ALUMINUM CO. OF AMERICA

I would like to think that color could be applicable as a finish on automobile trim due to the peculiarities and finishing processes of aluminum. I can't tell you that this is a trend nor that it will definitely be accepted. We are thinking of it on the interiors primarily of the higher cost cars.

J. M. LITTLE, CONSULTANT

High fashion and automotive fields show a continuing predominance in Cranberry, Garnet and Wine colors.

WILLIAM MITCHELL, STYLING STAFF, GENERAL MOTORS

Color is VERY important in the merchandising of automobiles. People seem to associate certain colors with cars, while other colors aren't "automotive" and probably never will be - for example, the magentas, high chroma lavenders and "violent" pinks probably aren't going to show up in production automobiles in the foreseeable future. Interiors are influencing purchaser's choices of exterior car colors. First and second order of preference is the white/ivory and blue range (1965), with black in least demand.

BUSINESS MACHINESJ. J. VAN ACKER, MANAGER, INDUSTRIAL DESIGN, ADDRESSOGRAPH MULTIGRAPH CORP.

Light, warm gray and beiges dominate because they are compatible with many settings. There seems to be less resistance to lighter colors in office equipment, since many people are beginning to realize that black dirt looks bad on any color. Smaller, less expensive office equipment is more likely to carry new colors in the future. There is a definite trend toward the use of clean colors to accent areas.

CAPITAL GOODSJEAN REINECKE, CONSULTANT DESIGNER

Many taboos, such as the use of bright, striking colors on traditionally gray and black machinery and instruments - have been liberated. Some excellent new uses of color have been made within this newly created sphere of acceptance. Our own experience shows relatively more care given to color selection. A diesel engine was very carefully and thoroughly color designed.

VICTOR SCHRECKENGOST - CONSULTANTCAPITAL GOODS: EQUIPMENT:

Conservative neutral colors, have noted higher contrasts and breakup of values in large areas. Brilliant accent color in controls, identification, etc.

PETER QUAY YANG, CONSULTANT

MACHINE TOOLS - There is an increasing demand for "new colors" other than the standard gray, blue, green or beige. There is a trend to have two-toning, either by using contrasting colors or different values of the same color.

SCHERR, MCDERMOTT, CONSULTANTS

INDUSTRIAL - In industrial applications the trend is toward more sophisticated colors in the warm and cool family.

HEAVY INDUSTRY - Light beige and light neutral green-blue shades.

COMMUNICATIONS EQUIPMENTPETER QUAY YANG, CONSULTANT

"Accessories" for the telephone - color - the tendency is toward neutral colors which will go well with any of the standard colors of the telephone. Trend is toward the warmer family of gray and beige. Primary colors are being used as accents on name plate, boarder line and control panel.

CONTRIBUTOR

There is no question that data processing systems color applications have had an enthusiastic reception from the customer. The color options that we are now providing do not meet all the desires of our customers. The blue that we use on our systems is the most popular - the yellow is the least popular.

W. H. HARKINS, HONEYWELL COMPUTER SYSTEMS

The Honeywell Series 200 Computer Systems have been designed so that color areas (other than lights and switches) can be added after system test just prior to shipment. The standard color for removable covers is a bright blue, but a strong red, turquoise or yellow is optionally available. The colored areas are planned so that they do not occur near operator work places, so that functional control panels are black and white with color used as control information. Metallic bright work is held to a minimum except in high wear areas. We have used black anodized aluminum extrusions in many areas.

The rationale of this color philosophy of a minimum number of bold, pure colors is governed by economics plus the fact that men buy and use computers more than women (as in the case of typewriters, etc). Bright colors go along with our own design philosophy that computers are not "big, gray, impersonal monsters" but extensions of human nervous systems.

ROBERT HOSE, CONSULTANT

On electronic equipment putty type color on control panels seems to be working well, with medium blue for use on surrounding cabinetry, consoles, etc. Control knobs and control knob indicators and switches, are also using more color for purposes of functional control coding.

EDUCATORSWILLIAM KATAVOLOS, PARSONS SCHOOL OF DESIGN

Color is becoming an essential art again. The austerity of the gray scale and natural color which have been essentially intellectual and symbolic, to the physiological and experimental levels. We might call it optical, as

against the intuitional expressionism of a few years back. It is the calculated control of increasingly complicated color relationships in a specific surrounding that determines its efficient use in design.

VICTOR SCHRECKENGOST, CLEVELAND ART INSTITUTE

Teaching: It is interesting to note that Industrial Design students seem to shy away from definite colors, more and more. Color in many cases seems to interfere with their form-design concepts. In every critique, it is necessary to point out the plus advantages and possibilities in the use of color.

INSTRUCTOR, ART CENTER SCHOOL - STROTHER MACMINN

AUTOMOTIVE DESIGN

Metallic exterior colors seem to be making a steady gain, particularly in lighter values. The brighter effects may also connote a richer effect in the popular luxury models. Contrasting monochromatic interior schemes increase the sense of luxury, especially in very dark colors. The graphic standard of black-face instruments with simpler white markings located in shadowed areas seems to be the dominant mechanical condition indication technique. There may be a trend toward the use of clear glass in tail lights with gelatin-filtered bulbs if safety requirements include a variety of colors in operational signals.

INTERIORS AND INSTITUTIONAL

BENJAMIN E. WERREMEYER, CONSULTANT

In the institutional field there is a definite turning away from the vibrant, bold colors of 1965, to colors which are several different colors at once, almost iridescent, jewel like. Maybe this can be, for once, a trend setter that will filter to the home furnishings market, which has just come out of the riotous color schemes, and for relief is going to the monochromatic.

HENRY GLASS, CONSULTANT

Home furnishings - Lighter wood finishes are making a brave attempt to, at least partially, compete with dark walnut. There is still considerable reluctance in regard to public acceptance. However, here as well as in institutional furnishings, combination of light and dark woodgrains are making progress on well-styled modern lines.

In Fabrics anything goes, warm earth color, cool blues and turquoise, even wild orchids and magentas, are selling as well as riotous, vibrant combinations of all these colors in exotic prints and tapestries.

In Institutional equipment the use of metal, stainless steel, and anodized aluminum in natural colors is predominant, together with dark, close to the grain wood finishes and plain solid colors of all hues of the spectrum. Tints, shades and tones are not very popular. Significant trends away from these established standards for '67 or '68 are not discernible.

J. M. LITTLE, J. M. LITTLE ASSOCIATES, CONSULTANTS

Stronger chroma seems to be the trend in exterior house colors. Interiors continue strong in the use of wood grain, particular fruitwood grain and colors. Much is the result of improved economics with the durable characteristics provided in vinyl clad wall board, etc.

EDWARD WORMLEY, CONSULTANT

In the field of upholstery fabrics and other decorative fabrics such as draperies, there seems a persistent interest in brandy and cherry colored tones; yellow browns, wineier reds, and deep rich blues. Greens continue to range from bright mossy tones to olive and green slate. All kinds of warm whites such as limestone white, ivory white; blacks are warmer with added mixtures of brown and dark blue.

PACKAGINGJEAN O. REINECKE, CONSULTANT

Complete lines of plastic products, their packages and their merchandising materials were color coordinated. We have seen some unusual, and uncommon examples of luminosity accomplished by the contrasting of pure and grayed colors.

FRANK GIANNINCTO, CONSULTANT

Color in packaging is becoming gayer, more lighthearted. This seems to be part of a total marketing trend toward a less heavy handed presentation of consumer products. A light, whimsical touch is evident in graphics generally, and is apparent in the choice of unusual colors and color combinations (which are often quite hilarious) that we see on some of the newer packages.

PERTINENT COMMENTSJEAN O. REINECKE, CONSULTANT

Richness still prevails. In the highly styled schemes the pastels seem to tend toward ternary or secondary hues, there are more deep values and the names are more exotic. There are some very capable color designers at work. Even fluorescents have been used as accents with good results. Color is getting to be more fun.

JOHN S. GRISWOLD, CONSULTANT

There is no strong color trend at the moment in our work. There is some response to the trend to Mondrian black and white with a touch of red or some such strong color. Another is a predominance of navy blue often interlaced with bright or Kelly green. Beyond this I cannot see too much which is unusual this year.

WILLIAM PURCELL, DESIGNER WITH HENRY DREYFUSS

In general the trend toward using lighter colors continues. Just as in the home stronger accent colors liven up the color scheme of a room, so it is in machine design where the accents manifest themselves in trim, trademarks, etc. With the growing trend to use symbols instead of printed instructions on machines, careful color coding is extremely important to assist the user in understanding the meaning of the symbol.

BENJAMIN E. WERREMEYER, CONSULTANT

Regarding your question for the Inter-Society Color Council, I frankly see much lacking in color...fashion would seem to dictate a "new" color every couple of months, much to the confusion of the average consumer, who hasn't been educated to the fact of not following trends, but rather finding the best color for the individual and sticking with it.

SCHERR, MCDERMOTT, CONSULTANTS

1967 Sales Motto - "Don't design the product - save it."

J. M. LITTLE, CONSULTANT

The subject seldom touched upon in our discussions of color is proper illumination. The recent awarding of patents, the first in twenty years, of a specific system of illumination should go far to help provide greater appreciation of color. Today even many of those esoteric are not fully aware of the far reaching effects. Like many of the delayed developments in our society due to the policies of vested interests, management has not provided for the production on a mass scale for likes of integrity.

One day laws will require honest artificial illumination. Some states today have laws preventing the use of yellow lights on blue chickens or red lighting on inferior meats.

The problems of illumination continue in the determination for color printing. Rarely do two agency offices where such color proofing is adjudged provide the same illumination.

MORTON GOLDSHOLL CONSULTANT

Nothing is new in color, which has existed since the world began. Arbitrary color schemes began to appear when the primitive artist first decided that a blue tree or a red man looked better. The market for colors today depends on the lack of certain colors rather than their existence. Purple comes back when people get purple hungry and never before and disappears for a while when people get fully saturated.

Strong vibrant colors seem to be appearing and pastels fading. People are more courageous in their choices as never before and artists are responding to this in many ways by offering even more daring color schemes.

Perhaps op art has its value after all.

RAYMOND SPILMAN SUMMARY

A poll of IDSA members has revealed an interesting, and in some ways significant commentary on the use of color in America. Therefore, I have organized the most significant commentaries into product and environmental areas so that you may locate your immediate color interests, and yet quickly discover color trends in coordinated product and environmental areas.

It is interesting that the majority of our replies were concerned with computer colors and computer environments, or household products. It is also interesting to note that there are approximately a half dozen designers who have made pertinent color observations in several fields of activity, thus proving that the Renaissance Man is still with us.

REPORT FROM THE NATIONAL ASSOCIATION
OF PRINTING INK MAKERS, INC. DELEGATES,
F. L. WURZBURG, JR., CHAIRMAN

A summary of the ISCC Technical Conference on "Instrumental Approaches to Colorant Formulation" was prepared by NPIRI for

distribution to NAPIM members and for duplication in the American Ink Maker. Of particular significance to our industry was the conclusion that the Kubelka-Munk approach, so successful in many other industries, has not yet been applied with any success to printing ink films on paper. So far no one has even come up with a sufficiently promising way of tackling this problem to warrant serious investigation.

An investigation is underway at NPIRI on the development of colorant tinting strength as agglomerate size distributions of pigments are changed during dispersion. The effect of the size distribution on the apparent Kubelka-Munk absorption coefficients are being evaluated for nearly achromatic systems.

There has been an increasing trend towards the use of optical character recognition or OCR systems. The variety of spectral regions to which these are sensitive, both in the visible and outside of it, have brought interesting challenges to the ink makers.

The ink makers are being asked to supply a wide variety of visually recognizable colors, in some cases to be read and in other cases to be ignored by the OCR systems themselves. This is complicated still further by the effect of the stock itself which can, in some cases, change an ink from one of these categories to the other.

There continues to be a good deal of activity on the part of the ink industry aimed at improving the hues of three and four-color process inks. However, aside from the rather general acceptance of the 4A-MPA proofing inks reported on previously, there has been no general agreement yet on improved colors.

Interchemical released the third of its educational films on color last September. It is called "Seeing Color."

One of our delegation has asked whether there might be sufficient interest in an English language version of the "Japanese Journal of Colour Material" to warrant seeking a method of having it translated and published here.

Our ever active delegate, "Tiny" Erikson continued to lecture on color to various Graphic Arts groups.

At the biennial NPIRI printing ink technology course, held last summer, a whole day was devoted to the subject of color. Three of the members of the NAPIM delegation participated as instructors.

REPORT FROM THE NATIONAL
SOCIETY OF INTERIOR DESIGNERS, INC.
DELEGATES, MRS. EDITH GECKER,
CHAIRMAN

No report.

REPORT FROM THE OPTICAL SOCIETY
OF AMERICA DELEGATES, DOROTHY
NICKERSON, CHAIRMAN

The Optical Society of America has held two meetings since our report of last year: October, 1965 in Philadelphia, and its 50th anniversary meeting,

March 31-April 2, 1966, in Washington, D. C. The fall meeting included a session on Color and Education, Deane B. Judd, chairman. The spring meeting included both an historical instrument exhibit at which many early gratings, colorimeters, color solid models, photometers and atlases were displayed, and a session of contributed color papers, David L. MacAdam, chairman. Several important papers were included, one by Judd presented the problem of terms, definitions, and symbols in reflectometry and an NBS extension of existing terminology, presented in the hope that the extension, or some revision of it, might merit formal adoption. Reviews were given of the history of photoelectric tristimulus colorimetry (by R. S. Hunter) and fifty years of the spectrophotometer (by L. C. Lewis). There were reports of visual experiments (by Beverly M. Hillman, H. Takasaki, and Hilton Wright), an excellent presentation of the theoretical limits of metamerism (by Eugene Allen), and a report on the use of an auxiliary sphere to permit spectrophotometric measurements to be made on an absolute basis (by Goebel, Caldwell, and Hammond).

The OSA Committee on Uniform Color Scales held its 9th meeting in Philadelphia in October, and its 10th meeting in Washington in March. Considerable progress has been made toward the aim of setting specifications for painting a limited number of samples to represent the committee's best effort to define a uniformly spaced rhombohedral lattice sampling of color space for a "committee observer" against a background of Munsell N 6/ (the background used in committee observations). Special studies made by individual members during the course of the committee's work have received committee consent or encouragement for separate publication. These include: a study of nonlinear relations of psychometric scale values to chromaticity differences by MacAdam; a progress report of the committee's work given at the 1965 international color meetings in Lucerne by Judd; a report on interval scales, ratio scales, and additive scales for the sizes of differences perceived between members of a geodesic series of colors (discussed at the 9th meeting) by Judd; a correlate for lightness in terms of CIE chromaticity coordinates and luminous reflectance by Wyszecki. In addition Wyszecki already has described (JOSA 55, 1319-1324) a special colorimeter built in his Ottawa laboratories to assist the OSA committee in its exploration of color space, particularly in the determination of its curvature. Experimental observations and results have been reported, with ovoids that represent the precision of matching color differences. The next meeting of the committee, at which specifications for a uniform-difference sampling at different values for four reference colors will be reviewed before deciding on the value-to-chromaticity intervals to be specified in the committee's production of a representative sampling, will be held in Ottawa in August. It slowly becomes evident that similar or related differences are showing up in the committee's specifications of a uniform spacing by each of the models used for comparison and study. Thus

it should become possible to provide a best fit to uniform spacing under the conditions specified for the committee model, and discover how each model must be adjusted to fit this new model. While there may be no perfect fit in the Euclidean sense, the departures begin to make more practical sense for each of the models studied than was first thought possible.

In ISCC NewsLetter 180-181 the editor already has published the remarks with which Dr. Judd, as honorary chairman, opened the Williamsburg ISCC technical conference. Dr. Judd was also persuaded by OSA delegates to prepare a summary report of this meeting for publication in the Journal of the Optical Society. This he has done, and the report has been accepted for prompt publication as a technical note. This insures that OSA members will be informed of this important ISCC activity regarding recent progress in the theory and practice of instrumental approaches to colorant formulation.

During the year since our last report the Optical Society has issued three special publications of interest to ISCC members: a directory, JOSA 55, Part 2 of No. 10 (October, 1965); a Cumulative Index for JOSA volumes 41-53, 1951-1963; and for its recently celebrated 50th anniversary meeting, a fifty year history, 1916-1966, JOSA 56 (March).

Because it has become increasingly hard on OSA's crowded programs to have time for discussions on specialized subjects, several groups have begun to meet for an extra evening. In addition to groups already formed, one on color has been authorized, with Dr. Judd appointed chairman. It is expected that the Uniform Scales Committee and OSA's ISCC representatives will cooperate to help make these discussion sessions serve the purpose; they could become a substitute for the days when OSA sessions on color provided a forum for discussion as well as presentation.

In regard to the CIE, OSA's delegates report that the four recommendations agreed upon in Vienna by E-1.3.1 (colorimetry) are contained in IIA, Vienna Proceedings, Vol. A, and that of E-1.3.2 (color rendering of light sources) is contained in CIE Publication No. 13. Announcement that this last report is available in this country and may be obtained from L. E. Barbrow, Natl. Bureau of Standards, at \$3. each is contained in the Jan. 1966 JOSA, p.136. Meetings of both CIE committees, held in Basle last June, were well represented by U.S. members and consultant guests. This colorimetry committee, under the capable chairmanship of Dr. Wyszecki, is continuing the active leadership it held under Dr. Judd. The color rendering committee is now making a survey of studies and applications in the various member countries regarding color rendering in the years 1962-1966, in preparation for the quadrennial CIE meeting to be held in Washington in June 1967.

Regarding publication of research papers on color and vision, the Optical Society continues its leadership. An index to 1965 papers will be found in volume 55 of JOSA, 1706-1737. It includes references to over 50 papers, notes or reviews of importance to color scientists. Among them are papers continuing the Friele analysis of color discrimination data; of MacAdam's smoothed modification of Friele's formulas; a prediction of the color of fiber blends by Davidson and Taylor; the precision of determination of Kubelka and Munk coefficients by Nickols and Orchard; studies of an index of metamerism by Nimeroff and Yurow; spectral distribution and color of daylight by Das and Shastri; two important papers regarding precision of spectrophotometry, an international comparison of working standards for colorimetry by Robertson and Wright, and precision in

routine industrial color measurements with the GE spectrophotometer by Billmyer; field trial of the 1964 CIE color-difference formula by Wyszecki and Wright; a description of the colorimeter developed in Wyszecki's laboratory for comparing several color differences simultaneously; a report by Hunt on measurement of color appearance in which he found that adaptation only partially corrected for changes in the color and intensity of adapting illumination; and a report by Hilton Wright of the precision of color differences derived from a multidimensional scaling experiment. In addition the 1965 journal carried two book reviews that should be noted: one by Newhall, reviewing the Hurvich and Jameson translation of Hering's classic Outlines of a Theory of the Light Sense; and a review by Jameson and Hurvich of Helson's recently published book on Adaptation-Level Theory (Harper and Row, N.Y. 1964).

Appointment of the present representatives to the Inter-Society Color Council have been continued for 1966 (JOSA 56,137). They consist of Hunter, MacAdam, Nickerson, voting delegates, and Bellamy, Foss, Fry, Granville, Hardy, Ingle, Judd, and Mary Warga, ex officio.

REPORT FROM THE PACKAGE
DESIGNERS COUNCIL DELEGATES,
KARL FINK, CHAIRMAN

No report.

REPORT FROM RESEARCH AND
ENGINEERING COUNCIL OF THE
GRAPHIC ARTS INDUSTRY, INC.
DELEGATES, C. M. FLINT,
CHAIRMAN

No report.

REPORT FROM THE SOCIETY OF
MOTION PICTURE & TELEVISION
ENGINEERS DELEGATES,
R. M. EVANS, CHAIRMAN

This last year has seen a sudden rush into color by the major television stations bringing with it the usual headaches and problems of such a change. This has emphasized a number of long-standing problems.

The most interesting problem deals with the optimum color balance for a subtractive original film which has to be transmitted and displayed by an additive system. As usual the answer will be found empirically and the society's Color Committee is playing the leading role in this effort.

There has also been much interest and experiment with the newer quartz iodide and xenon light sources both for taking and projecting pictures as well as for making prints.

Six articles on color were published in the journal. Titles have been submitted to the News Letter Bibliography Committee.

REPORT FROM THE SOCIETY OF
PHOTOGRAPHIC SCIENTISTS AND
ENGINEERS DELEGATES, ALBER
J. DERR, CHAIRMAN

To the Inter-Society Color Council:

We have completed a busy and fruitful year in applying the science of color to problems in photographic science and engineering.

This is evidenced by some of the articles published in our journal "Photographic Science and Engineering". A bibliography of articles of potential interest to ISCC members is submitted.

The most important news to report is that a study has been made by a Liaison Committee with respect to a proposed consolidation of the Society of Motion Picture and Television Engineers and our Society, both of whom are members of the Council. The Committee has recommended the consolidation and submitted the proposal to the respective Boards for consideration.

We would like to extend a sincere appreciation for the opportunity to participate in the activities of the Council.

REPORT FROM THE SOCIETY OF
PLASTICS ENGINEERS DELEGATES,
F. W. BILLMEYER, JR., CHAIRMAN

The Coloring and Finishing of Plastics
Professional Activities Group of the
Society of Plastics Engineers organized
the technical program of a Regional

Technical Conference "Coloring of Plastics II," held at Rochester, N. Y., May 12, 1965. Several prominent ISCC members (including Saltzman, Ingle, Billmeyer) contributed papers. Some of these papers, along with those dealing with color from other SPE conferences were digested or summarized in a special feature on the coloring of plastics in the SPE Journal for September, 1965. Many of them have been published in full elsewhere (Color Engineering, Materials Research and Standards).

The Inter-Society Color Council and the Society of Plastics Engineers held their first joint meeting at the SPE's Annual Technical Conference in Montreal, March 8, 1966, in the form of a panel discussion titled "ISCC-SPE: A Combined Industry Approach to Coloring Problems." The session was moderated by F. W. Billmeyer, Jr., and featured Problems Committee Chairman R. E. Derby, Jr., and Subcommittee Chairmen Dimmick, Billmeyer, Huey, Allen, and Kelly discussing the working of the ISCC and its attack on old and new coloring problems. Summaries of the talks are being prepared for publication in both the ISCC News Letter and the SPE Journal.

A Regional Technical Conference "Coloring of Plastics III" will be held at the Statler Hilton in New York on June 10, 1966. Again prominent ISCC members (Hunter, Johnston) will present papers. In addition the official representative of the SPE at the ISCC Williamsburg Conference on Instrumental Approaches to Colorant Formulation (Billmeyer) will report on that Conference to the SPE.

With this report, the Chairmanship of the Delegation from the Society of Plastics Engineers changes hands. The new Chairman, M. M. Gerson, has been instrumental in the growth and success of the Coloring Group in the SPE since its formation, and the retiring Chairman wishes him every success in the future.

REPORT FROM THE TANNERS' COUNCIL
OF AMERICA, INC. DELEGATES
MRS. RUTH H. K. FRIES, CHAIRMAN

No report.

REPORT FROM THE TECHNICAL
ASSOCIATION OF THE GRAPHIC
ARTS DELEGATES,
PHILIP TOBIAS, CHAIRMAN

At the 1965 meeting, the committee discussed some of the problems of color densitometry. It was felt that a deterrent might exist to correlating results obtained using densitometers from different manufacturers, as well

as possibly different densitometers from the same manufacturer. A member of the committee expected to make a survey of the various instruments, and would

probably have a report for the next meetings with suggestions for consideration by the committee for design improvements.

A list of 164 references had been published by Erwin Jaffe in the TAGA proceedings for 1964 in a bibliography on Ink Color Standards. It was agreed that a set of abstracts to cover the substance of these papers would be quite valuable and could be published in a future edition of the TAGA proceedings. Various members of the committee volunteered to read and abstract portions of this bibliography.

REPORT FROM THE TECHNICAL
ASSOCIATION OF THE PULP AND
PAPER INDUSTRY DELEGATES,
V. N. DeFELICE, CHAIRMAN

The major area of concentration in TAPPI relating to color was again centered around the Optical Methods Committee of the Testing Division. (Chairman during 1965 was Mr. Harold Brill of E. I. DuPont de Nemours & Co.)

Nine papers were published in Tappi which were concerned with Optical measurements.

Also published in Tappi were the following proposed Standard Methods and Routine Control Methods as developed by the Optical Methods Committee.

1. "Color Strength and Shade of Dye" Proposed Revision of Suggested Method T626 Tappi vol. 48 no. 8: 152A-154A (August, 1965).
2. "Spectrophotometric Test for Relative Radiance of Paper and Paperboard Containing Fluorescent Brightness" Routine Control Method 327. Tappi vol. 48 no. 10: 180A-181A (October, 1965).

LIST OF ARTICLES ON
COLOR RECEIVED BY
NEWSLETTER

"Is the Concept of Standard Brightness Suitable Today?" J. A. Van Den Akker, Leonard R. Dearth and Wayne M. Shillcox, Tappi, 46, No. 5, pp. 202A-207A (May 1963).

"Is the Deterioration of Colour Discrimination with Age Due to Lens or Retinal Changes?" R. Lakowski, Die Farbe, 11, Nr. 1/6, pp. 69-86 (1962).

"Japanese Spectrophotometer," American Ink Maker, XLI, No. 11, p.56 (November 1963).

"Japanese Woodcuts and Colour," Heinz Brasch, Palette, No. 19, pp. 2-13 (1965).

"Know Your Colorant Characteristics," J. E. Simpson, Modern Plastics, 40, No. 7, pp. 88-91, 199, 201, 202, 204-205, 209-210 (March 1963).

"Le Système 'DIN' de Définition des Couleurs," M. Manfred Richter, Couleurs, No. 49, pp. 14-19 (1963). (in French)

"Light Scattering in Fibrous Sheets," Edwin W. Arnold, Tappi, 46, No. 4, pp. 250-256 (April 1963).

"The Lightfastness of Dyes: A Review," C. H. Giles and R. B. McKay, Textile Research J., 33, p. 527 (1963).

"Lightfastness--Some Remarks on an Old Problem," Roland E. Derby Jr., Lab Notes, 3, No. 3, pp. 2-11 (December 1962).

"Lighting Needs for Older Eyes," C. L. Crouch, *The Sight-Saving Review*, XXXV, No. 4, pp. 213-215 (Winter 1965).

"Lines of Constant Correlated Color Temperature Based on MacAdam's (u,v) Uniform Chromaticity Transformation of the CIE Diagram," Kenneth L. Kelly, *J. Opt. Soc. Amer.*, 53, No. 8, pp. 999-1002 (August 1963).

"Locus of Hypnotically Induced Changes in Color Vision Responses," Israel Goldiamond and Leslie F. Malpass, *J. Opt. Soc. Amer.*, 51, No. 10, pp. 1117-1121 (October 1961).

"Low Vision Services," Margaret Gnade, *The Sight-Saving Review*, XXXV, No. 4, p. 216 (Winter 1965).

"Luminosity Functions of Normal, Deuteranomalous, and Deuteranopic Subjects as Determined by Absolute Threshold and CFF Measurements," William E. Collins, *J. Opt. Soc. Amer.*, 51, No. 2, pp. 202-206 (February 1961).

"Massachusetts Hunter--Safety Color Test," Oscar W. Richards, *J. Amer. Optometric Assn.*, 33, No. 3, pp. 205-209 (October 1961).

"Matching Afterimages of Metameric Colors," Stephen H. Forbes, Spring Meeting *Opt. Soc. Amer.*, Pick-Roosevelt Hotel, Pittsburgh, Pa., March 2-4, 1961. (Abstract in *J. Opt. Soc. Amer.*, 51, No. 4, p. 475, 1961.)

"Matching and Specifying Color," Warren L. Rhodes, *American Ink Maker*, XLII, No. 4, pp. 20-22, 62 (April 1964).

"Maxwell and Modern Colorimetry," D.B. Judd, *J. of Photog. Sci.*, 9, No. 6, pp. 341-352 (November-December 1961).

"Measurements of the Appearance of Paint Finishes," Richard S. Hunter, *Off. Digest*, 35, No. 459, pp. 350-365 (April 1963).

"Measurements of the Appearance of Paper," Richard S. Hunter, *Tappi*, 45, No. 9, pp. 203A-209A (September 1962).

"Metal Colouring," D. Fishlock, Robert Draper Ltd., Teddington, 393 pp. (1962).

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